

## Fully Calibrated Nano-Power Temperature Sensor IC

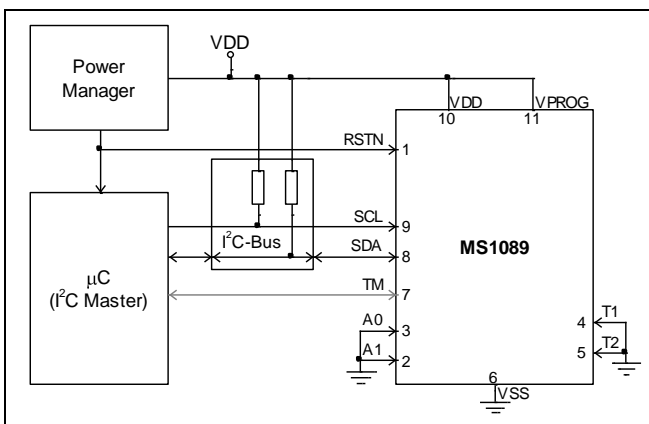
### General description

The integrated circuit MS1089 is a fully integrated calibrated digital low power temperature sensor with a typical temperature measurement accuracy of  $\pm 0.3^{\circ}\text{C}$ . The MS1089 has an I<sup>2</sup>C interface and is available in Chip-Scale-Package (CSP).

### Applications

- Wireless sensor tags and cards
- Wearables
- Internet of Things (IoT)
- Smart Home
- Power-supply temperature monitoring
- Environmental monitoring and HVAC
- Computer peripheral thermal protection
- Notebook computers and tablets
- Phone batteries
- Battery management
- Thermostat controls

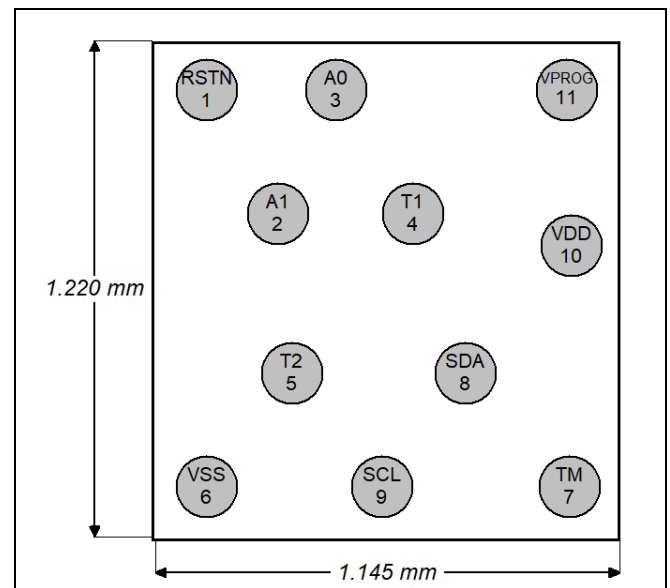
### Typical application



### Features

- Serial 2-wire I<sup>2</sup>C Fast-mode Plus (1 MHz) interface
- Up to 4 sensors can be addressed over the same serial bus (4 sub-addresses)
- Optional hardware handshake to start a temperature measurement and wake-up the microcontroller at the end
- High accuracy:  $\pm 0.3^{\circ}\text{C}$  from  $0^{\circ}\text{C}$  to  $60^{\circ}\text{C}$ ,  $V_{DD} \geq 2.2\text{V}$
- Temperature measuring range:  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- Three resolutions:  $0.1^{\circ}\text{C}$  (11-bit),  $0.05^{\circ}\text{C}$  (12-bit) and  $0.025^{\circ}\text{C}$  (13-bit) selectable with I<sup>2</sup>C
- Fast measurement time:  $< 30\text{ms}$  typical at  $0.1^{\circ}\text{C}$  resolution
- Zero current in sleep mode (only leakage)
- Peak current during measurement:  $70\mu\text{A}$
- Avg. current  $27\text{nA}$  at one measurement per minute
- Supply range:  $1.8\text{V}$  to  $3.6\text{V}$
- Available in CSP package

### Pinout and dimensions (preliminary)



### Ordering information

Type	Package	Availability
MS1089A	CSP	Samples available Delivery form is tape&reel

### MS1089

- Nano-power temperature sensor with near zero power in sleep mode. World class!
- Ultra-low average current consumption and low peak current consumption make the MS1089 ideal for use in the wireless sensor tags and cards, Wearables, Internet of Things (IoT), or Smart Home markets, particularly for use with printed batteries.
- Large supply voltage range allows direct connection to a great variety of power supply sources including batteries and energy harvesters without the need of additional voltage regulation (less power, less components)
- Small CSP footprint is perfect for miniaturized electronics
- Easy to manufacture: board placement with standard SMT placer

Request the datasheet at [info@microdul.com](mailto:info@microdul.com) or call +41 44 455 35 11 for more information.